

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listing, of claims in the application:

Claims 1-63 (Cancelled)

Claim 64 (currently amended): A medical device comprising

a substrate constructed and arranged for insertion into a patient and having at least one lumen, said lumen having a surface,

wherein the substrate is an insertable medical instrument formed from ~~comprises~~ polymers or copolymers selected from the group consisting of polyurethane and ~~or~~ silicon; and

a plurality of monomer molecules directly graft polymerized on a surface of the substrate, forming a coating thereon, wherein said coating on said substrate is a polymer or copolymer or a derivative of said polymer or copolymer formed from a monomer or derivative thereof selected from the group consisting of an acrylamide, N,N-dimethylacrylamide, and mixtures thereof.

Claim 65 (currently amended): The medical device of claim 64, wherein the substrate is a catheter, guide wire or tubing ~~medical instrument~~.

Claim 66 (previously presented): The medical device of claim 64, wherein the catheter is selected from the group consisting of PTCA catheters, cardiology catheters, central venous catheters, urinary catheters, drain catheters, and dialysis catheters.

Claim 67 (currently amended): The medical device of claim ~~98~~ 64, which further includes an additional ~~a third~~ polymeric layer.

Claim 68 (previously presented): The medical device of claim 64, wherein the coating provides a property of absorbing large quantities of water to provide moisture absorption or of lubricity.

Claim 69 (currently amended): The medical device of claim 98 64, wherein the ~~coating~~ provides functional groups to attach physiologically or pharmacologically active agents; ~~permitting the delivery of drugs from the coating.~~

Claim 70 (currently amended): The medical device of claim 98 64, wherein the coating provides a drug depot permitting the delivery of drugs from the coating.

Claim 71 (previously presented): The medical device of claim 64, wherein the substrate is a silicon polymer.

Claim 72 (previously presented): The medical device of claim 64, wherein the substrate is polyurethane.

Claim 73 (previously presented): The medical device of claim 64, wherein the entire surface of the interior luminal surface, the exterior surface or both, is coated.

Claim 74 (previously presented): The medical device of claim 64, which consists essentially of said substrate and said coating.

Claim 75 (previously presented): The medical device of claim 64, which consists of said substrate and said coating.

Claim 76 (currently amended): A medical device comprising  
a substrate constructed and arranged for insertion into a patient and having at least one lumen, said lumen having a surface,

wherein the substrate is an insertable medical instrument formed from ~~comprises~~ polymers or copolymers selected from the group consisting of polyurethanes, silicones, ~~polyolefins, polyamides~~ and latex; and

a plurality of monomer molecules directly graft polymerized on the surface of the substrate, forming a coating thereon, wherein said coating on said substrate is a polymer or copolymer or a derivative of said polymer or copolymer formed from a monomer or derivative thereof selected from the group consisting of an acrylamide, N,N-dimethylacrylamide, polyethyleneglycolacrylate, alkylacrylate, ~~pyridine, piperidine~~, maleic acid, hydroxyethyl methacrylate, polyvinylpyridine, 2- and 4-vinylpyridine; 4- and 2-methyl-5-vinylpyridine; N-methyl-4-vinylpiperidine, and admixtures thereof.

Claim 77 (currently amended): The medical device of claim 76, wherein the substrate is a catheter, guide wire or tubing ~~medical instrument~~.

Claim 78 (previously presented): The medical device of claim 77, wherein the catheter is selected from the group consisting of PTCA catheters, cardiology catheters, central venous catheters, urinary catheters, drain catheters, and dialysis catheters.

Claim 79 (currently amended): The medical device of claim ~~99~~ 76, which further includes an additional a polymeric layer on the coating.

Claim 80 (previously presented): The medical device of claim 76, wherein the coating provides a property of absorbing large quantities of water to provide moisture absorption or of lubricity.

Claim 81 (currently amended): The medical device of claim ~~99~~ 76, wherein the ~~coating~~ ~~provides~~ functional groups to attach physiologically or pharmacologically active agents.

Claim 82 (currently amended): The medical device of claim ~~99~~ 76, wherein the coating provides a drug depot permitting the delivery of drugs from the coating.

Claim 83 (previously presented): The medical device of claim 76, wherein the monomer or derivative thereof is selected from the group consisting of an acrylamide, N,N-dimethylacrylamide, polyethyleneglycolacrylate, alkylacrylate, and hydroxyethyl methacrylate.

Claim 84 (previously presented): The medical device of claim 76, wherein the entire surface of the interior luminal surface, the exterior surface or both, is coated.

Claim 85 (previously presented): The medical device of claim 76, which consists essentially of said substrate and said coating.

Claim 86 (previously presented): The medical device of claim 76, which consists of said substrate and said coating.

Claim 87 (currently amended): A medical device comprising  
a substrate constructed and arranged for insertion into a patient and having at least one lumen, said lumen having a surface,

wherein the substrate is an insertable medical instrument formed from ~~comprises~~ polymers or copolymers selected from the group consisting of polyurethanes, silicon polymers, ~~polyolefins,~~ ~~polyamides,~~ polyvinylchloride and latex; and

a plurality of monomer molecules directly graft polymerized on the surface of the substrate, forming a coating thereon, wherein said coating on said substrate is a polymer or copolymer or a derivative of said polymer or copolymer formed from a monomer or derivative thereof selected from the group consisting of an acrylamide, N,N-dimethylacrylamide, polyethyleneglycolacrylate, alkylacrylate, hydroxyethyl methacrylate, and admixtures thereof.

Claim 88 (currently amended): The medical device of claim 87, wherein the substrate is a catheter, guide wire or tubing ~~medical instrument~~.

Claim 89 (previously presented): The medical device of claim 87, wherein the catheter is selected from the group consisting of PTCA catheters, cardiology catheters, central venous catheters, urinary catheters, drain catheters, and dialysis catheters.

Claim 90 (currently amended): The medical device of claim 100 ~~87~~, which further includes an additional a polymeric layer on the coating.

Claim 91 (previously presented): The medical device of claim 90, wherein the polymeric layer comprises a polymer selected from the group consisting of polyurethanes, acrylics, polyamides and cellulose.

Claim 92 (previously presented): The medical device of claim 87, wherein the coating provides a property of absorbing large quantities of water to provide moisture absorption or of lubricity.

Claim 93 (currently amended): The medical device of claim 100 ~~87~~, which further includes physiologically or pharmacologically active agents and wherein the functional groups ~~to~~ attach said physiologically or pharmacologically active agents.

Claim 94 (previously presented): The medical device of claim 87, wherein the lumen has both interior and exterior surfaces, and at least a portion of both the interior and exterior of the lumen is coated with monomer molecules graft polymerized to said surfaces.

Claim 95 (previously presented): The medical device of claim 87, wherein the entire surface of the interior luminal surface, the exterior surface or both, is coated.

Claim 96 (previously presented): The medical device of claim 87 which consists essentially of said substrate and said coating.

Claim 97 (previously presented): The medical device of claim 87, which consists of said substrate and said coating.

Claim 98 (new): The medical device of claim 64, further comprising at least one crossing-linking agent or at least one monomer substituted with functional groups.

Claim 99 (new): The medical device of claim 76, further comprising at least one crossing-linking agent or at least one monomer substituted with functional groups.

Claim 100 (new): The medical device of claim 87, further comprising at least one crossing-linking agent or at least one monomer substituted with functional groups.

Claim 101 (new): The medical device of claim 99, wherein the crossing-linking agent provides a cross-linked polymer structure.

Claim 102 (new): The medical device of claim 99, wherein the crossing-linking agent comprises monomers having di- or multi-unsaturated functional groups.

Claim 103 (new): The medical device of claim 99, wherein the crossing-linking agent is selected from the group consisting of diacrylates and dimethylacrylates of polyethylene glycol and diacrylates and dimethylacrylates of polypropylene glycol, trimethylolpropane triacrylate and trimethacrylate, di-trimethylolpropane, tetraacrylate, pentaerythritol tetraacrylate, and tetramethacrylate, divinylbenzene, divinyl sulfone silicone-containing diacrylates and dimethacrylates.

Claim 104 (new): The medical device of claim 99, wherein the monomers substituted with functional groups is selected from the group consisting of carboxylic acid, amine and hydroxyl.

Claim 105 (new): The medical device of claim 99, further comprising polyethylene glycol.

Claim 106 (new): The medical device of claim 99, further comprising an active agent or drug.

Claim 107 (new): The medical device of claim 106, wherein the drug is selected from the group consisting of anti-infective agents, antibiotics, antimicrobial agents, antithrombogenic compounds, anticancer agents, anti-inflammatories and mixtures thereof.

Claim 108 (new): The medical device of claim 106, wherein the drug is selected from the group consisting of aminoglycosides, gentamicin, amikacin, benzalkonium chloride, 2-bromo-2-nitropropane-1,3-diol, polyhexanide, benzalkoniumheparinate, trididecylmethylammonium heparinate, paclitaxel, merbarone, methotraxate and dexamethasone.

Claim 109 (new): The medical device of claim 106, wherein the drug is selected from the group consisting of rifamycin, gentamicin lauryl sulfate, vantocil, benzalkonium chloride, 2-bromo-2-nitropropane-1,3-diol, silver nitrate, Germall plus, methotraxate and paclitaxel.